

U.S. Appln. No. 09/844,421
Response and Amendment dated June 14, 2004
Reply to Office action of January 12, 2004
Page 3 of 8

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1. (Previously Presented) A method of determining at least one surface property of a multiplicity of solids or mixtures of solids comprising desorbing adsorbed adsorbate from the solids while measuring the radiation emitted, absorbed, or altered by the respective solid(s) concurrently using a detector; and determining at least one surface property of the solids or mixtures of solids using the radiation measurements.
2. (Original) The method of Claim 1 wherein the desorbing is accomplished using a technique selected from the group consisting of temperature ramping and pressure ramping.
3. (Canceled).
4. (Canceled).
5. (Original) The method of Claim 1 wherein the radiation and detector are those used in a technique selected from the group consisting of infrared spectroscopy, ultraviolet spectroscopy, visible spectroscopy, fluorescence, infrared thermography, nuclear magnetic resonance, electron paramagnetic resonance, x-ray adsorption, x-ray photoelectron spectroscopy, Raman spectroscopy, and combinations thereof.
6. (Previously Presented) The method of Claim 1 further comprising identifying the solid or mixture of solids having the value, relative or absolute, of the surface property that is closest to a predetermined value.
7. (Original) The method of Claim 1 wherein the surface property is selected from the group consisting of relative adsorptivity, acid site distribution, acid site energy or acid site strength, acid site strength distribution, base site strength, number of base sites, base site distribution, porosity, pore size,

U.S. Appln. No. 09/844,421
Response and Amendment dated June 14, 2004
Reply to Office action of January 12, 2004
Page 4 of 8

pore density, pore volume, pore shape, surface area, metal dispersion, exposed metal surface area, mobility of metals on the surface of a solid, chemisorb properties, physisorb properties, adsorption selectivity, desorption, ion-exchange capacity, and combinations thereof.

8. (Previously Presented) The method of Claim 1 further comprising contacting the solids or mixtures of solids with a stream of inert fluid prior to contacting the solids or mixtures of solids with the adsorbate.
9. (Previously Presented) The method of Claim 8 further comprising substantially simultaneously measuring radiation emitted, absorbed, or altered by the respective solids or mixtures of solids using the detector during the contacting of the solids or mixtures of solids with the stream of inert fluid to generate a baseline.
10. (Original) The method of Claim 1 further comprising correcting the measurements collected during the contacting with the adsorbate by subtracting a baseline.
11. (Previously Presented) The method of Claim 8 further comprising ramping the temperature of the solids or mixtures of solids to a predetermined maximum temperature during the contacting the solids or mixtures of solids with a stream of inert fluid.
12. (Original) The method of Claim 11 further comprising substantially simultaneously measuring radiation emitted, absorbed, or altered by the solid or mixture of solids using the detector during the contacting of the solid or mixture of solids with the stream of inert fluid while ramping the temperature in order to generate a baseline.
13. (Original) The method of Claim 12 further comprising correcting the measurements collected during the contacting with the adsorbate by subtracting the baseline of Claim 12.
14. (Previously Presented) The method of Claim 1 wherein the solids or mixtures of solids are selected from the group consisting of catalysts, adsorbents, polymers, ceramics, metals, and various types of carbons.

U.S. Appln. No. 09/844,421
Response and Amendment dated June 14, 2004
Reply to Office action of January 12, 2004
Page 5 of 8

15. (Previously Presented) The method of Claim 1 wherein the solids or mixtures of solids are selected from the group consisting of molecular sieves, including zeolites, aluminas, silicas, amorphous silica aluminas, zirconias, mixed metal oxides, clays, ion exchange resins, and polymers including functional polymers.
16. (Original) The method of Claim 1 wherein at least one support comprises a plurality of wells.
17. (Original) The method of Claim 1 wherein the adsorbate is selected from the group consisting of water, pyridine, ammonia, hydrogen, nitrogen, air, helium, argon, fluorine, neon, alkanes, alkynes, alkenes, alcohols, aromatics, thiols, esters, ketones, aldehydes, esters, amides, nitriles, nitroalkanes, amines, alkylamines, quinoline, carbon monoxide, carbon dioxide, and carboxylic acids.
18. (Previously Presented) The method of Claim 1 further comprising contacting the solids or mixtures of solids with an adsorbate for a period of time prior to the desorbing.

Claims 19-22 (Canceled).